

Aquaculture

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The official link for this solicitation is: http://www.nifa.usda.gov/funding/rfas/sbir_rfa.html

Agency:
Department of Agriculture

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Description:

The Aquaculture topic area aims to develop new technologies that will enhance the knowledge and technology base necessary for the continued growth of the domestic aquaculture industry as a form of production agriculture. Seafood production from the wild is under increased pressure due to overfishing and pollution and therefore aquaculture is increasingly becoming an important source of seafood and an important contributor to improve food security. In this context new technologies are needed to protect aquaculture species against disease and to improve production efficiency. Emphasis is placed on research leading to improved production efficiency and increased competitiveness of private sector aquaculture in the United States. Studies on commercially important, or potentially important, species of fish, shellfish and plants from both freshwater and marine environments are included. Food Safety is another important priority in Aquaculture. Technologies are needed to ensure the safety of aquaculture species from heavy metals and other hazardous materials and from human pathogens.

To meet these identified needs in aquaculture, the program's long-term goals (10 years) are to achieve improved aquaculture production resulting from improved reproductive efficiency in fish and shellfish; improved aquaculture production resulting from genetic improvement in fish and shellfish; improved aquaculture production resulting from improved animal health; improved aquaculture production with reduced water usage and improved production efficiencies; and cost-effective production of microalgae for use as aquaculture feed and as a source of valuable human food supplements.

FY 2012 Research Priorities:

Examples of appropriate subtopics for research applications from small businesses include, but are not limited to the following:

1. **Reproductive Efficiency**– Novel or innovative approaches to improve reproductive efficiency in aquaculture including: greater control of maturation, ovulation and fertilization; improved gamete and embryo storage; improved larval rearing techniques; enhanced reproductive performance of broodstock; improved methods for cryopreservation of sperm and embryos; and methods to control sex determination.
2. **Genetic Improvement**– Novel or innovative approaches to improve production efficiency through genetic improvement of aquacultural stocks including: genetic mechanisms of sex determination; genetic basis for inheritance of commercially important traits, such as growth, cold tolerance, and pathogen susceptibility; identification of major genes affecting performance; application of molecular biology and genomics and the integration of this technology into breeding programs; and performance evaluation of aquacultural stocks and utilization of crossbreeding and hybridization.
3. **Integrated Aquatic Animal Health Management**– Novel or innovative approaches to reducing acute and chronic losses related to aquatic animal health in aquaculture production systems through an integrated holistic approach including: physiological stress related to the quality of the aquatic production system; genetic, environmental, and nutritional components of aquatic health management; control of predation in aquaculture production systems; development of new vaccines or immunization procedures to enhance resistance to infectious diseases and parasites; development of diagnostic tests for specific diseases that pose a health hazard; and development of improved treatment methods for acute or chronic health problems caused by specific infectious or non-infectious agents, parasites, injuries and chemical and toxic agents.
4. **Improved Production Systems and Management Strategies**– Novel or innovative approaches to improve existing or alternative production system design and management strategies including: development of biological, engineering and economic design criteria and models; enhancement of water quality in existing production systems through aeration, flow patterns, etc.; characterization, handling and treatment of effluent from aquacultural production systems; improved harvesting methods and strategies; and improved operating efficiencies for recirculation systems.
5. **Plant Production Systems**– Novel or innovative approaches to improve the efficiency of algal production systems including: identification of new species with improved nutritional profile for use in feeding to other aquacultural species or as a source of valuable human food supplements; development of improved bioreactor technology; and development of better methods for harvesting algal biomass.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**
- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).
- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will be excluded from NIFA review.
- The applicants are strongly encouraged to contact the National Program Leader regarding the suitability of research topics.
- Applications that deal with the development of new food products derived from aquaculture species should be submitted under topic area 8.5 Food Science and Nutrition.

